

**Statement of
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**Hearing on Using Spectrum to Advance Public Safety,
Promote Broadband, Create Jobs, and Reduce the Deficit**

**Before the
Subcommittee on Communications and Technology
Committee on Energy and Commerce
U.S. House of Representatives**

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Good afternoon Chairman Walden, Ranking Member Eshoo, and Members of the Subcommittee. I appreciate the opportunity to appear before you today.

A little over a year ago the FCC developed the country's first National Broadband Plan to identify the key strategic issues our country faces in making broadband available to all Americans and to make recommendations for achieving that goal. The National Broadband Plan placed unprecedented emphasis on mobile broadband, in part because no other sector now holds more promise for economic growth, for creating jobs, for improvements to our quality of life, and for our global competitiveness.

Mobile Broadband Services and Devices Are Revolutionizing our Lives. Mobile broadband services and devices are revolutionizing virtually every aspect of the way we live, work and play. Only a few short years ago wireless networks and cell phones offered one simple but important capability - - to make voice telephone calls and call 9-1-1 from almost anywhere.

Today's wireless networks can do so much more - - they provide access to the Internet, location based services, streaming video content, and many other capabilities.

Wireless networks are evolving from the 3G services that gave us our first taste of mobile broadband connectivity, to 4G services that rival the connectivity many people enjoy today on their desktop computers.

Smartphones are getting more powerful and their operating systems are getting smarter. In the 4th quarter of 2010, smartphones outsold PCs worldwide – 101 million to 92 million. The commercial tablet market didn't even exist until a couple of years ago. Now, the iPad2 is backordered for several weeks.

Health care is being transformed by remote medical monitoring devices that can help diabetes patients track their glucose levels or heart disease patients monitor

cardiovascular data. These new devices will vastly improve quality of care, reduce medical costs, and most importantly, save lives.

The energy sector is creating the smart grid, which relies on wireless technologies to reduce our fuel consumption and save money.

Education is also being transformed by mobile broadband, with wireless services enabling broadband service to schools and classrooms in rural areas. The backpack of textbooks that many of us once carried to school as children is being replaced by digital textbooks the size of a composition notebook that can be updated instantaneously.

An entire new industry has emerged based on the creation of applications, or “apps,” for wireless devices, built upon the ingenuity of entrepreneurs and small businesses. This industry barely even existed just a couple of years ago. In 2009, people downloaded 300 million mobile apps. Last year, that number increased more than 16 times to 5 billion downloaded mobile apps.

We could barely have imagined these possibilities just a few short years ago, yet we have just begun to scratch the surface. The revolution is only just beginning.

Mobile Broadband Growth is Vital to Growth of Our Economy and Creation of Jobs. There is perhaps no other sector that is more vital to growing our economy and creation of jobs. Consider the following data points:

- Analysts project tablet sales of 55 million worldwide this year, making it a \$35 billion dollar industry.
- By 2015, the “apps economy,” is projected to generate \$38 billion in sales.
- In 2009, mobile online shopping brought in \$1.4 billion. Last year, it jumped to nearly \$4 billion.
- According to the High Tech Spectrum Coalition, over the next five years, investments in 4G wireless technologies will create 205,000 U.S. jobs.

Companies like Groupon and Living Social, which are moving aggressively into the mobile space, are each hiring more than 150 employees ... a month.

The 4G buildout itself is an engine for job creation. According to industry reports, deploying the 40,000 towers needed for these next-generation mobile networks will create 53,000 jobs and help us reach the goal the President set to bring 4G service to 98 percent of Americans in the next 5 years.

The bottom line is that mobile broadband is being adopted faster than any computing platform in history, and it could surpass all prior platforms in its potential to drive economic growth and opportunity.

There Is A Looming Spectrum Crunch. Spectrum - - the airwaves - - is our invisible infrastructure. It is the oxygen that wireless networks and devices need to operate and thrive. Without adequate spectrum, calls are dropped, service is unreliable and data speeds slow to a crawl, chilling the development of all of the wonderful things I've discussed earlier.

The Commission has worked hard to increase the supply of spectrum available for mobile broadband, increasing the amount available by about threefold. That sounds pretty good until you start to take a look at the demand side of the equation.

Smartphones consume 24 times as much data as traditional cell phones. And for tablets that number is about 120 times. And then there are all the industries that are just beginning to rely on wireless technologies for the more efficient delivery of service - - health care, energy, public safety, transportation and education among them -- all of which will add to the load that will need to be carried on the wireless networks.

Some analysts forecast a 35X increase in mobile broadband traffic over the next 5 years. Cisco has projected a nearly 60X increase between 2009 and 2015.

All we need to do verify these projections first-hand is look in the palm of our hands at our wireless devices and how we use them. We check our e-mails, monitor the news and weather, get directions, and watch sporting events and other programs that stream live to our phones.

Only a fraction of wireless users have these capabilities today, but the number is rapidly increasing. My little three year-old granddaughter doesn't yet know how to spell, but she sure knows her way around the screen of an iPhone.

This explosion in demand for spectrum is putting strain on the limited supply available for mobile broadband. We certainly must continue to drive efficient use of the spectrum, but efficiency improvements are not going to be enough. We will be facing a spectrum crunch, in which demand for spectrum will exceed supply, by early 2014 unless we promptly take action to make more spectrum available. Otherwise, consumers will face dropped calls, slow or no service and skyrocketing prices for mobile data.

The FCC Has Established A Comprehensive Spectrum Agenda. To address these challenges and seize the opportunities of mobile, the FCC is moving forward aggressively with a comprehensive mobile broadband agenda as set out in the National Broadband Plan.

We have eliminated unnecessary restrictions on the use of certain spectrum bands. This has allowed us, for example, to open 25 megahertz of spectrum in the 2.3 GHz band, which is already being used for broadband in Korea.

We initiated a proposal to provide greater flexibility to offer terrestrial service in the frequency bands that are allocated for mobile satellite service. Last week the Commission adopted rules to implement this proposal.

We freed up TV “white spaces” spectrum – the most significant amount of unlicensed spectrum in 25 years -- to enable new technologies like “Super Wi-Fi.” We are working hard to put all the pieces in place to enable making new innovative “Super Wi-Fi” devices available and providing new services before the end of this year, if not sooner.

We are driving more efficient and innovative uses of spectrum – taking action to spur dynamic spectrum sharing and secondary markets for spectrum, as well as facilitating development and deployment of femtocells, smart antenna technology, and technologies like Wi-Fi that can use unlicensed spectrum to off-load traffic from cellular networks.

The Commission is working to remove obstacles to robust and ubiquitous deployment of 4G mobile broadband (*e.g.*, regulatory barriers related to tower sitings). It’s been estimated that removing red tape and expediting approval processes could unleash \$11.5 billion in new broadband infrastructure investment over two years.

We are also collaborating with the National Telecommunications and Information Administration to support an Executive Order issued by the President to free up 500 megahertz of spectrum for broadband, almost double what is currently available. Our Spectrum Task Force issued a public notice inviting comment on fast track spectrum bands that NTIA identified for wireless broadband service and on the spectrum bands that are candidates for further study to meet the 500 megahertz goal.

The FCC Has Completed A Baseline Spectrum Inventory. For more than a year the Commission has conducted – and has now completed – a baseline spectrum inventory. The Commission’s baseline inventory is one of the most substantial and comprehensive evaluations of spectrum in its history. We have developed two tools – LicenseView¹ and the Spectrum Dashboard² that provided unprecedented transparency into the use of spectrum.

The Spectrum Dashboard, released last year, identifies how non-Federal spectrum is currently being used, who holds spectrum licenses and where spectrum is available. The Commission just released Spectrum Dashboard 2.0, an upgraded version that provides more granular information about spectrum holdings, including the ability to determine the extent of licensing within counties and on tribal lands, and offers additional insights on the secondary market in spectrum licenses through the addition of leasing information.

¹See <http://reboot.fcc.gov/license-view>.

²See <http://reboot.fcc.gov/reform/systems/spectrum-dashboard>.

LicenseView is a comprehensive online portal to information about each spectrum license. It presents data from multiple FCC systems in a searchable, user-friendly manner.

Our work leading up to and in creating and maintaining a spectrum inventory has provided the necessary information to determine how best to unleash significant additional spectrum for wireless broadband within the next ten years. It has enabled us to obtain a more complete picture of what spectrum is dedicated to what purposes and where spectrum can be made available for flexible use, including mobile broadband.

The task of identifying spectrum for wireless broadband services must take into account a number of factors. These factors include the need for large blocks of contiguous spectrum to accommodate the latest technologies and provide opportunities for new entrants and competition. Our baseline spectrum inventory has allowed us to determine that the best opportunities for providing access to suitable spectrum for wireless broadband services lie in the TV broadcast bands and Mobile Satellite Service Bands.

The Commission Seeks Authority to Conduct Voluntary Incentive Auctions.

Through the years, the Commission has been granted authority and the flexibility to smoothly transition spectrum from one service to another while ensuring the continued viability of existing services. Nearly 20 years ago, Congress authorized and the FCC implemented a breakthrough, market-driven policy innovation to better allocate this scarce resource – spectrum auctions. Previously, spectrum was allocated through comparative hearings and lotteries. The shift to auctions was a way to use market forces to drive spectrum to its most valuable uses.

The idea was the right one, and since 1993, spectrum auctions have not only raised more than \$50 billion in revenue for the Treasury, but also generated hundreds of billions of dollars in private investment and productivity gains and enabled new competition that dramatically lowered prices for consumers and accelerated the pace of innovation, which in turn has helped grow our economy.

As recommended in the National Broadband Plan, the Commission is seeking authority to move to the next generation of market-based auction policy. Voluntary incentive auctions are the next tool for bringing market-based mechanisms to bear on spectrum allocation.

Under this proposal, Congress would grant the FCC the authority to run two-sided, voluntary spectrum auctions, in which current licensees would voluntarily contribute spectrum and would in return receive a portion of the proceeds of the auction. The voluntary incentive auction proposal is an incentive-based, market-driven path to tackle America's spectrum crunch and would provide a capital infusion for licensees that choose to participate with some or all of their spectrum, strengthening their economic position.

The Commission can initially apply this market-based tool to the mobile satellite services and broadcast television bands, which as I mentioned stand out as falling within the

frequencies appropriate for mobile use that have sufficient bandwidth to offer clear opportunities for increased spectrum access.

Estimates show that the revenue potential of voluntary incentive auctions could reach \$30 billion. Based on past experience, some estimate that the consumer benefits of freeing up spectrum for mobile broadband would be 10 times higher than the value that spectrum generates at auction. An auction market value of \$30 billion would translate to broad consumer benefits of \$300 billion.

Last week, 112 of the nation's leading economists from across the ideological spectrum released a letter they had signed endorsing incentive auctions. The economists who've signed this letter include Nobel and Nemmers Prize winners, former members of both Republican and Democratic administrations, and FCC Chief Economists who served under Chairmen of both parties. The letter states:

Congress has another chance to give the FCC a valuable tool to increase the efficiency of spectrum use in the United States by granting the FCC the authority to auction spectrum it controls at the same time as it auctions spectrum licenses held by commercial entities. Auction design and practice is sufficiently advanced that the FCC can successfully implement this type of auction. Incentive auctions can facilitate the repurposing of spectrum from inefficient uses to more valuable uses while minimizing the transaction costs incurred. Giving the FCC the authority to implement incentive auctions with flexibility to design appropriate rules would increase social welfare.

The economists' letter follows one sent earlier this year by associations representing more than 2,000 companies with over \$1 trillion in revenue, calling on Congress "to swiftly pass legislation allowing the FCC to conduct voluntary incentive auctions" and calling these auctions "critical to furthering innovation and growing jobs in America."

Voluntary incentive auctions are the right idea at the right time. It's essential that we move quickly – not only because of the benefits of action, but because of the costs of inaction. If we do nothing in the face of the looming spectrum crunch, many consumers will face higher prices – as the market is forced to respond to supply and demand – and frustrating service – connections that drop, apps that run unreliably or too slowly.

We Support Ensuring a Healthy and Robust TV Broadcasting Industry. We recognize that some are concerned that voluntary incentive auctions will come at the expense of TV broadcasting. To the contrary, we believe that voluntary incentive auctions can be conducted in a manner that encourages a healthy and robust broadcasting industry.

While realignment of some broadcast stations will be necessary to ensure efficient use of the spectrum freed up in an incentive auction, our proposal seeks to limit the number of stations that would need to switch frequencies as part of the realignment process. For those that do, we would work to limit any loss of service to over-the-air television

viewers and would fully reimburse them for any costs associated with relocating. No stations would be required to move from the UHF band to the VHF band unless they freely chose to do so in exchange for a share of the auction proceeds. Finally, because digital technology allows stations to use virtual channel numbers, even if a station's actual channel number changes through realignment, it can continue to have its former channel number display on television screens and set-top boxes.

Conclusion. If there is one point worth repeating, it is that we must continue to seize every opportunity to free up spectrum for mobile broadband, including through the use of new tools like incentive auctions, so that this finite resource can continue to be an engine for economic growth, job creation, innovation, competition, improvements to our quality of life, and for our global competitiveness. I thank you for your attention and would be pleased to answer any questions you may have.